

PATENT SPECIFICATION

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(54) PROCESS FOR RETANNING AND FATLIQUORING LEATHER

(71) We, BADISCHE ANILIN- & SODA-FABRIK AKTIENGESSELLSCHAFT, a German Joint Stock Company of 6700 Ludwigshafen, Federal Republic of Germany, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a process for retanning and fatliquoring leather.

In the manufacture of leather, the chrome tanning or vegetable tanning process has hitherto been followed by retanning and fatliquoring in a vat. This subsequent treatment provides important prerequisites for further processing and influences the utility properties of the finished leather, for example, the filling of the leather, its grain tightness, its buffing properties and its handle.

These factors form the basis for subsequent finishing processes in which the surface of the leather is modified according to individual requirements.

In the said subsequent treatment, the dispersions of retaining and fatliquoring materials penetrate the leather from both the grain side and the flesh side. Due to the structure of hide, these dispersions are absorbed more rapidly and in greater amounts from the flesh side. In fact, however, only the grain layer of the leather needs said materials, for the other part of the leather has already been given the necessary stability and preservation by the chrome tanning or vegetable tanning process.

It is clear, therefore, that the prior art method of operating in a vat leads to virtual wastage of a disproportionately large amount of retanning material. Moreover, the fiber structure of the leather is damaged when the latter is subjected to the prolonged drumming in a vat. Finally, the absorption of retanning and fatliquoring materials is incomplete and uneven. It is well known that animal hide exhibits big structural variations which lead to varying absorption of the dispersions provided in the retanning liquor in the rotating vat.

Furthermore, the affinity of these dispersions for leather causes local overdosing on the surface of the leather if the distribution of the retanning and fatliquoring agents is not effected sufficiently quickly.

For the above reasons, the grain layer is not equally strong at all points and breaks may occur during the mechanical preparatory operations. These irregularities in the grain layer cannot be overcome by applying paints and binders. Indeed, such irregularities are more likely to be emphasized by such measures.

We have now found, surprisingly, that the above drawbacks may be obviated with a considerable saving of material and time.

Our process for retanning and fatliquoring leather which has been tanned with chrome or vegetable tanning materials consists in treating said tanned leather with retanning materials, fatliquoring agents and, optionally, wetting agents and dyes and is characterized in that the retanning materials, fatliquoring agents and optionally wetting agents and dyes are applied exclusively to the grain side of the leather.

Suitable retanning materials for the process of the invention are all those materials which have hitherto been recommended for this purpose, dissolved in water or water-miscible organic solvents, such as commercial vegetable tanning materials, condensation products of phenols or naphthols with formaldehyde, aromatic sulphononic acids with formaldehyde, urea/formaldehyde condensates, dicyanodiamide and melamine/formaldehyde condensates, acrylic resin dispersions, glutardialdehyde and basic mineral tanning salts.

To these solutions or dispersions there may be added any of the usual fatliquoring agents, for example products based on sulphonated, sulphated, animal and vegetable oils and fats and/or synthetic oils based on chlorinated, sulphochlorinated and saponified paraffin or olefin derivatives or emulsions of animal, vegetable or synthetic oils produced using cationic or non-ionic emulsifiers. Any of the usual dyes employed in

leather dyeing may be simultaneously used if desired, for example azo or complex dyes.

To control penetration, cationic, non-ionic or anionic wetting agents, such as polyoxyalkylated, hydrocarbon-active compounds, fatty alcohol sulphonates or condensation products with amines, urea derivatives and tertiary nitrogen bases, may be used if necessary.

In the process of the invention, the retanning materials and fatliquoring agents are applied once or a number of times to the grain layer of the leather either together or in succession. Suitable methods of application are brushing (using plush pads or brushes), spraying and curtain coating, that is, methods normally employed in finishing or colouring leathers.

Specifically, the process can be carried out as follows: chrome-tanned or vegetable-tanned leathers which have a pH of from 2 to 5 depending on the nature of the tanning process used, are partially sammed and pared in known manner. The grain side is then padded, brushed, sprayed or curtain coated with an approx. 10-30% pure tanning solution, which may contain from 20 to 100 g of pure fat per liter, at a rate of, say, 500 to 300 cm³ per m² of leather using appropriate application machines.

If desired, from about 2 to 20 g of a wetting agent and from about 5 to 20 g of dye may be added to this solution. Following the said application, the leathers are conditioned and dried in the usual manner and then treated appropriately for the particular purpose to which they are to be put.

In this way, there are obtained leathers of high quality and excellent grain tightness in a short time appropriate to the present-day tendency to rationalization. This result is surprising, as one would have assumed that the time necessary for complete absorption of the retanning material through the grain would have been disproportionately long. Such an assumption is justified from the prior method of working in a vat, for which it was presumed that a retanning effect could only be achieved by the drumming motion maintained over a reasonable period of time. Furthermore, when this process is used for subsequent treatment of chrome leather, it is not necessary, unlike hitherto, to effect neutralization, if tanning solutions having a pH of 7 are used. Thus the invention provides the removal of a definite prejudice in this field.

Compared with conventional methods, the process of the invention achieves true rationalization, since it effects a saving of tanning material of up to 50% and leads to complete absorption of tanning material without damage to the grain by mechanical influences and provides a selective application of the tanning materials with a saving of, for example, from about 2¹/₂ to 2³/₄ hours, when one compares, for example, the retanning of about 100 halves in a vat taking about 3 hours as against approx. 20 minutes in the process of the invention.

Example

Chrome-tanned, sammed and died neat's leather is treated on the grain side with

1 kg/m² of a naphthalenesulphonic acid/formaldehyde resin (80% pure retanning material) as a 50% solution,

1 kg/m² of a 20% sulphited sperm oil emulsion having a dry fat content of 60% and

10 g/m² of an ethoxylated fatty acid.

After conditioning and drying for 2 hours, there is obtained a high-quality leather having excellent grain tightness.

WHAT WE CLAIM IS:—

1. A process for retanning and fatliquoring leather which has been tanned with chrome or vegetable tanning materials, by treating said tanned leather with retanning materials, fatliquoring agents and, optionally, wetting agents and dyes, wherein the said retanning materials, fatliquoring agents and, optionally, wetting agents and dyes are applied to the leather in its grain side only.

2. A process as claimed in claim 1, wherein the retanning materials and fatliquoring agents are applied together.

3. A process as claimed in claim 1, wherein the retanning materials and fatliquoring agents are applied in succession.

4. A process as claimed in claim 1 and substantially as described in the foregoing Example.

5. Leather whenever prepared by a process as claimed in any of claims 1 to 4.

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